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10/508,812	09/21/2004	Takakiyo Kanazawa	SON-2651	5948

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EXAMINER	
GUPTA, PARUL H	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/508,812	KANAZAWA ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-42 are pending for examination as interpreted by the examiner. The IDS filed on 9/21/04 was considered.

Claim Objections

2. Claim 6 is objected to because of the following informalities: minor typographical errors such as the misspelling of the word "with". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 7, 15, 17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakao et al., US Patent 6,272,097.

Regarding claim 1, Nakao et al. teaches in figure 1 an optical pickup apparatus comprising: an optical pickup including an optical pickup body having a substrate (2), a light source attached to said substrate (1), a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, wherein said optical pickup is configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated along a thicknesswise direction of the optical disk by an air flow formed between said slider and

the recoding face (between elements 17A and 13 of figure 10B), said optical member is configured such that a light beam emitted from said light source is illuminated on the recording face (element 13 of figure 13) through said objective lens (element 12 of figure 13) and the reflected light beam reflected by the recording face is received by said light receiving element (3) through said objective lens, and said optical member (4-7) is provided in a state wherein said optical member closely contacts with said light source (1), objective lens and light receiving element without a gap left therebetween. As it is part of the same substrate, there is no gap left therebetween.

Regarding claim 15, Nakao et al. teaches in figure 1 an optical disk apparatus comprising: driving means for holding and driving an optical disk to rotate (function performed by element 37 of figure 16); and an optical pickup apparatus (element 17(100,101) of figure 16) for illuminating light on the optical disk driven to rotate by said driving section and detecting reflected light from the optical disk; said optical pickup apparatus including: an optical pickup having an optical pickup body having a substrate (2), a light source (1) attached to said substrate, a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, wherein said optical pickup being configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated along a thicknesswise direction of the optical disk by an air flow formed between said slider and the recoding face (between elements 17A and 13

of figure 10B), said optical member being configured such that a light beam emitted from said light source is illuminated on the recording face(element 13 of figure 13) through said objective lens (element 12 of figure 13) and the reflected light beam reflected by the recording face is received by said light receiving element (3) through said objective lens, and said optical member (4-7) is provided in a state wherein said optical member closely contacts with said light source (1), objective lens and light receiving element without a gap left therebetween. As it is part of the same substrate, there is no gap left therebetween.

Regarding claim 3, Nakao et al. teaches in figure 1 the optical pickup apparatus according to claim 1 wherein, said light source (1) is attached to said substrate (2), and a surface of said light source which is exposed to the outside while said light source is attached to said optical member is covered with anticorrosion means for blocking the surface from the external air (shown in figures 4A to 6B and explained further in column 6, lines 24-49).

Regarding claim 17, Nakao et al. teaches in figure 1 the optical disk apparatus according to claim 15 wherein, said light source (1) is attached to said substrate (2), and a surface of said light source which is exposed to the outside while said light source is attached to said optical member is covered with anticorrosion means for blocking the surface from the external air (shown in figures 4A to 6B and explained further in column 6, lines 24-49).

Regarding claim 7, Nakao et al. teaches in figure 1 the optical pickup apparatus according to claim 1 wherein, said objective lens is provided integrally with an objective lens plate (9), and said objective lens plate is attached at one face thereof to said optical pickup body (top) while said slider is attached to the other face of said objective lens plate (via element 17A of figure 10B).

Regarding claim 21, Nakao et al. teaches in figure 1 the optical disk apparatus according to claim 15 wherein, said objective lens is provided integrally with an objective lens plate (9), and said objective lens plate is attached at one face thereof to said optical pickup body (top) while said slider is attached to the other face of said objective lens plate (via element 17A of figure 10B).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 4-6 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al.

Regarding claim 2, Nakao et al. teaches in figure 1 the optical pickup apparatus according to claim 1 wherein, said optical member (4-7) is in the form of a rectangular plate and is attached at one of two mutually opposing faces thereof to said substrate (2) while said objective lens (9) is attached to the other of the two mutually opposing faces of said optical member, and said light source (1) is attached to a face of said optical

member perpendicular to the one face and the other face. Although there is no mention in Nakao et al. of the plate being rectangular, this is merely a matter of design choice.

Regarding claim 16, Nakao et al. teaches in figure 1 the optical disk apparatus according to claim 15 wherein, said optical member (4-7) is in the form of a rectangular plate and is attached at one of two mutually opposing faces thereof to said substrate (2) while said objective lens (9) is attached to the other of the two mutually opposing faces of said optical member, and said light source (1) is attached to a face of said optical member perpendicular to the one face and the other face. Although there is no mention in Nakao et al. of the plate being rectangular, this is merely a matter of design choice.

Regarding claim 4, Nakao et al. teaches in figure 1 the optical pickup apparatus according to claim 3, wherein said anticorrosion means is made of a synthetic resin material (shown in figures 4A to 6B and explained further in column 6, lines 24-49). The given section explains the anticorrosion means, which serve the same purpose as the synthetic resin material.

Regarding claim 18, Nakao et al. teaches in figure 1 the optical disk apparatus according to claim 17 wherein, said anticorrosion means is made of a synthetic resin material (shown in figures 4A to 6B and explained further in column 6, lines 24-49). The given section explains the anticorrosion means, which serve the same purpose as the synthetic resin material.

Regarding claim 5, Nakao et al. teaches in figure 1 the optical pickup apparatus according to claim 3 wherein, said light source (1) includes a light emitting element for emitting the light beam, a photo-detector (3) for monitoring the light beam emitted from said light emitting element, and a mount member attached to said substrate (2) and having said light emitting element and said photo-detector mounted thereon, that surfaces of said light emitting element, photo-detector and mount member which are exposed to the outside while said mount member is attached at a lower face (area between elements 2 and 1 or 3) thereof to said substrate and the light emitting face of said light emitting element and a front face of said mount member are attached to said optical member are covered with said anticorrosion means, and that said anticorrosion means is formed from a transparent synthetic resin material through which the light beam emitted from said light emitting element can pass (shown in figures 4A to 6B and explained further in column 6, lines 24-49). Although the photodectors are not specified as being for monitoring the light beam, using them for that purpose would be obvious to one of ordinary skill in the art.

Regarding claim 19, Nakao et al. teaches in figure 1 the optical disk apparatus according to claim 17 wherein, said light source (1) includes a light emitting element for emitting the light beam, a photo-detector (3) for monitoring the light beam emitted from said light emitting element, and a mount member attached to said substrate (2) and having said light emitting element and said photo-detector mounted thereon, that surfaces of said light emitting element, photo-detector and mount member which are exposed to the outside while said mount member is attached at a lower face (area

between elements 2 and 1 or 3) thereof to said substrate and the light emitting face of said light emitting element and a front face of said mount member are attached to said optical member are covered with said anticorrosion means, and that said anticorrosion means is formed from a transparent synthetic resin material through which the light beam emitted from said light emitting element can pass (shown in figures 4A to 6B and explained further in column 6, lines 24-49).). Although the photodectors are not specified as being for monitoring the light beam, using them for that purpose would be obvious to one of ordinary skill in the art.

Regarding claim 6, Nakao et al. teaches the optical pickup apparatus according to claim 5 wherein, connection terminals for inputting a driving signal are provided on said light emitting element while electric terminals for relaying the driving signal are provided on said substrate, and said connection terminals and said electric terminals are covered with said anticorrosion means. Column 11, lines 4-13 give the necessary connection terminals. Although it is not specified how they are covered with anticorrosion means, the fact that the details of protecting the light source are given makes it obvious to one of ordinary skill in the art at the time of the invention to protect all elements exposed to air in the same way.

Regarding claim 20, Nakao et al. teaches the optical disk apparatus according to claim 19 wherein, connection terminals for inputting a driving signal are provided on said light emitting element while electric terminals for relaying the driving signal are provided on said substrate, and said connection terminals and said electric terminals

are covered with said anticorrosion means. Column 11, lines 4-13 give the necessary connection terminals. Although it is not specified how they are covered with anticorrosion means, the fact that the details of protecting the light source are given makes it obvious to one of ordinary skill in the art at the time of the invention to protect all elements exposed to air in the same way.

5. Claims 8-14, 22-28, and 29-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. in view of Crane et al., US Patent 6,078,473.

Regarding claim 29, Nakao et al. teaches in figure 1 an optical pickup apparatus comprising: an optical pickup including an optical pickup body having a substrate (2), a light source (1) attached to said substrate, a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body; wherein said optical pickup is configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated following up the recording face of the optical disk by an air flow formed between said slider and the recoding face (between elements 17A and 13 of figure 10B). Nakao et al. does not but Crane et al. teaches a resiliently deformable support plate (22 of figure 3) in the form of a small-width plate having said optical pickup attached to an end in a longitudinal direction thereof wherein said support plate has a thermal conductivity and a heat radiating property (column 2, lines 6-10 explain that the flexure is conductive). It

would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given support plate as taught by Crane et al. into the system of Nakao et al. This would serve the purpose of achieving precise, high performance head positioning (column 1, lines 59-63 of Crane et al.).

Regarding claim 36, Nakao et al. teaches in figure 1 an optical disk apparatus comprising: driving means for holding and driving an optical disk to rotate (function performed by element 37 of figure 16); and an optical pickup apparatus (element 17(100,101) of figure 16) for illuminating light on the optical disk driven to rotate by said driving means and detecting reflected light from the optical disk; said optical pickup apparatus including: an optical pickup including an optical pickup body having a substrate (2), a light source (1) attached to said substrate, a light receiving element (3) attached to said substrate and an optical member (4-7) attached to said substrate, and an objective lens lens (shown more clearly as element 12 of figure 13) and a slider ("flying slider" of element 17 as shown more clearly in figure 10B) attached to said optical pickup body, wherein said optical pickup being configured such that said slider is opposed to a recording face of an optical disk (element 13 of figures 10B) and said optical pickup is levitated following up the recording face of the optical disk by an air flow formed between said slider and the recoding face (between elements 17A and 13 of figure 10B). Nakao et al. does not but Crane et al. teaches a resiliently deformable support plate (22 of figure 3) in the form of a small-width plate having said optical pickup attached to an end in a longitudinal direction thereof wherein said support plate has a thermal conductivity and a heat radiating property (column 2, lines 6-10 explain that the

flexure is conductive). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given support plate as taught by Crane et al. into the system of Nakao et al. This would serve the purpose of achieving precise, high performance head positioning (column 1, lines 59-63 of Crane et al.).

Regarding claim 8, Crane et al. teaches the optical pickup apparatus according to claim 1 wherein, said optical pickup apparatus comprises a resiliently deformable support plate (22 of figure 3) in the form of a small-width plate having said optical pickup attached to an end in a longitudinal direction thereof, and said support plate has a thermal conductivity and a heat radiating property (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 22, Crane et al. teaches the optical disk apparatus according to claim 15 wherein, said optical pickup apparatus comprises a resiliently deformable support plate (22 of figure 3) in the form of a small-width plate having said optical pickup attached to an end in a longitudinal direction thereof, and said support plate has a thermal conductivity and a heat radiating property (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 9, Crane et al. teaches the optical pickup apparatus according to claim 8 wherein, said support plate has a heat radiating fin (elements 174 and 176 of figure 13) provided thereon in a projecting manner in a direction in which said radiating fin approaches the recording face.

Regarding claim 23, Crane et al. teaches the optical disk apparatus according to claim 22 wherein, said support plate has a heat radiating fin (elements 174 and 176 of figure 13) provided thereon in a projecting manner in a direction in which said radiating fin approaches the recording face.

Regarding claim 30, Crane et al. teaches the optical pickup apparatus according to claim 29 wherein, said support plate has a heat radiating fin (elements 174 and 176 of figure 13) provided thereon in a projecting manner in a direction in which said radiating fin approaches the recording face.

Regarding claim 37, Crane et al. teaches the optical disk apparatus according to claim 36 wherein, said support plate has a heat radiating fin (elements 174 and 176 of figure 13) provided thereon in a projecting manner in a direction in which said radiating fin approaches the recording face.

Regarding claim 12, Crane et al. teaches the optical pickup apparatus according to claim 11 wherein, said load beam has a heat radiating fin (elements 174 and 176 of figure 13) provided in a projecting manner in a direction in which said load beam approaches the recording face.

Regarding claim 26, Crane et al. teaches the optical disk apparatus according to claim 25 wherein, said load beam has a heat radiating fin (elements 174 and 176 of figure 13) provided in a projecting manner in a direction in which said load beam approaches the recording face.

Regarding claim 33, Crane et al. teaches the optical pickup apparatus according to claim 32 wherein, said load beam has a heat radiating fin (elements 174 and 176 of

figure 13) provided in a projecting manner in a direction in which said load beam approaches the recording face.

Regarding claim 40, Crane et al. teaches the optical pickup apparatus according to claim 39 wherein, said load beam has a heat radiating fin (elements 174 and 176 of figure 13) provided in a projecting manner in a direction in which said load beam approaches the recording face.

Regarding claim 10, Crane et al. teaches the optical pickup apparatus according to claim 8 wherein, said support plate is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 24, Crane et al. teaches the optical disk apparatus according to claim 22 wherein, said support plate is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 31, Crane et al. teaches the optical pickup apparatus according to claim 29 wherein, said support plate is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 38, Crane et al. teaches the optical pickup apparatus according to claim 36 wherein, said support plate is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 13, Crane et al. teaches the optical pickup apparatus according to claim 11 wherein, said load beam is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 27, Crane et al. teaches the optical disk apparatus according to claim 25 wherein, said load beam is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 34, Crane et al. teaches the optical pickup apparatus according to claim 32 wherein, said load beam is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 41, Crane et al. teaches the optical pickup apparatus according to claim 39 wherein, said load beam is made of a material of copper or iron which has copper plated thereon (column 6, lines 22-33).

Regarding claim 11, Crane et al. teaches the optical pickup apparatus according to claim 8 wherein, said optical pickup apparatus further comprises a resiliently deformable load beam (18 of figure 3) in the form of a small-width plate having said support plate attached to one end in a longitudinal direction thereof, and said load beam transmits and radiates heat from said light source rapidly (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 25, Crane et al. teaches the optical disk apparatus according to claim 22 wherein, said optical pickup apparatus further comprises a resiliently deformable load beam (18 of figure 3) in the form of a small-width plate having said support plate attached to one end in a longitudinal direction thereof, and said load beam transmits and radiates heat from said light source rapidly (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 32, Crane et al. teaches the optical pickup apparatus according to claim 29, wherein said optical pickup apparatus further comprises a resiliently deformable load beam (18 of figure 3) in the form of a small-width plate having said support plate attached to one end in a longitudinal direction thereof, and said load beam transmits and radiates heat from said light source rapidly (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 39, Crane et al. teaches the optical pickup apparatus according to claim 36 wherein, said optical pickup apparatus further comprises a resiliently deformable load beam (18 of figure 3) in the form of a small-width plate having said support plate attached to one end in a longitudinal direction thereof, and said load beam transmits and radiates heat from said light source rapidly (column 2, lines 6-10 explain that the flexure is conductive).

Regarding claim 14, Crane et al. teaches in figure 7 the optical pickup apparatus according to claim 11 wherein, a gap is formed between said support plate (22) and said load beam (18) and filled with grease for transmission of heat (column 5, lines 32-45).

Regarding claim 28, Crane et al. teaches in figure 7 the optical disk apparatus according to claim 25 wherein, a gap is formed between said support plate (22) and said load beam (18) and filled with grease for transmission of heat (column 5, lines 32-45).

Regarding claim 35, Crane et al. teaches in figure 7 the optical pickup apparatus according to claim 32 wherein, a gap is formed between said support plate (22) and said load beam (18) and filled with grease for transmission of heat (column 5, lines 32-45).

Regarding claim 42, Crane et al. teaches in figure 7 the optical pickup apparatus according to claim 39 wherein, a gap is formed between said support plate (22) and said load beam (18) and filled with grease for transmission of heat (column 5, lines 32-45).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
6/26/06

THANG V. TRAN
PRIMARY EXAMINER